q. Prohibit the outdoor storage of garbage in the alpine and subalpine zone during April 1 through October 31. All garbage should be transferred to base facilities for disposal on a daily basis.

r. Garbage from the resort and ancillary facilities should be removed to an appropriate site or, if disposed of on site, should be disposed of by fuel-fired incineration on a regular basis (daily if possible).

s. All trail heads, lift houses, and other developed access points, should have public information posted on how to avoid conflicts with bears and rules on back country use including packing out garbage.

t. Open-pit garbage dumps (including those with surface burning) within the lease should not be permitted.

u. Bear-proof fencing or bear-proof containers should be used at all garbage storage and transfer sites.

v. **Habitat Mitigation Plan.** The developer must provide a habitat mitigation plan that describes specific design methodolgy that the developer will use to minimize direct and irrevocable habitat loss. The plan shall estimate the number of acres of wildlife habitat lost by the placement of improvements. The plan must describe construction techniques that the developer will employ to reduce or eliminate long-term effects on the habitat disturbed during construction. Furthermore, the plan must describe long term maintenance strategies that the developer will use for habitat that will be modified to enhance recreational values such as ski trails.

10. OTHER ENVIRONMENTAL QUALITY GUIDELINES

a. **Environmental Studies.** Environmental studies should be undertaken during the planning and development of the ski resort in order to:

(1) provide sufficient data to minimize impacts to fish and wildlife habitat during construction and operation of the resort and to determine how best to mitigate for loss of fish and wildlife habitat;

(2) to establish baseline water quantity and quality and to monitor water quantity and quality and other environmental quality factors during operation of the resort;

(3) and to provide sufficient engineering geology, soils and vegetation data to prevent or minimize erosion and safety hazards to the public.

b. **Water and Wastewater Systems.** The developer should consider serving development "nodes" with their own water supply and/or wastewater disposal systems. This would be preferable to constructing large systems, with extensive sewage collection and water distribution systems, to serve the entire development, because it would be less expensive and because the amount of discharge to a

particular receiving body would be reduced. Treatment beyond secondary level may be required if necessary to prevent contamination of the Little Susitna River. The option of discharge to a holding pond for use in snowmaking and golf course irrigation should be evaluated.

c. **Air Pollution.** To minimize air pollution within the resort area, reduce traffic by making public transportation available and attractive to use to the extent feasible and prudent. The use and number of wood stoves/fireplaces could be minimized in the project. Use of fireplaces fueled by natural gas are encouraged. Any wood stoves that are utilized in the project should have catalytic converters to reduce emissions.

d. **Noise.** Special architectural treatment to absorb sound, site planning, and the establishment of buffer zones to isolate noisy equipment should be incorporated in project planning.

The techniques listed below, singly or in combination, should be used to reduce machinery noise where feasible:

(1) Segregating noisiest elements in groups.

(2) Vibration damping (using materials like lead sheet in foundation).

(3) Isolating vibration (mounting on springs).

(4) Sound absorbing enclosures (with hard outer shell and sound absorbent liner).

(5) Sound attenuating at exhaust or intakes of fans or compressors.

(6) Plenum treatments (devices admitting low-velocity air, to prevent escape of excessive noise).

(7) Pipe lagging (lining or covering that absorbs radiated noise).

(8) Providing partial barriers.

(9) Lining ducts.

(10) Using silencers, mufflers, or mutes (attenuating noise from high velocity flow of gases by multiple reaction of sound waves from acoustically absorbent surfaces; eliminating turbulent flow; and reducing flow velocity).

(11) Reducing motor speed (to lowest practical requirements in combination with size and pressure to produce required power).

(12) Selecting valves not normally noisy (pilot-operated or compound valves rather than direct-acting or single stage).

(13) Preventing development of cavitation in pumps (by keeping suction line velocities to less than 5 ft/s (1.5 m/s, keeping inlet lines short with a minimum of bends and joints, etc.).

(14) Reducing turbulent flow next to flat metal plates.

(15) Using rubberlike flexible connection in drive shafts.

(16) Reducing gear noise by maintaining equipment, controlling alignment, and using enclosures.

(17) The techniques listed below may be used to reduce construction and operation noise. Again, the Planning Team should consider whether any of these techniques should be required for construction within the lease.

(18) Replacing individual operation and construction techniques by less noisy ones; for example, using welding instead of riveting, mixing concrete off site instead of on site, and employing prefabricated structures instead of building them on site.

(19) Selecting the quietest alternative items of equipment; for example, electric instead of diesel-powered equipment, hydraulic tools instead of pneumatic-impact tools.

(20) Scheduling equipment operations to keep average noise levels low; for example, scheduling the noisiest operation to coincide with times of highest ambient levels, keeping noise levels relatively uniform in time, turning off idling equipment, and restricting working hours.

(21) Increase the number of machines at work at any one time (this will reduce the duration of noise exposure, although it will increase the noise level during that particular time of operation).

(22) Making use of speed limits to control noise from vehicles.

(23) Keeping noisy equipment operation as far as possible from site boundaries.

(24) Providing enclosures for stationary items of equipment and barriers around particularly noisy areas on the site or around the site itself.

(25) Locating haul roads behind natural earth berms or embankments.

(26) Maintaining noise control devices.

(27) Replacing mufflers before breakdown.

(28) Replacing warped, bent, or damaged engine enclosures and ineffective insulation.

(29) Noise control measures will be effective only as long as control devices are properly maintained.

[9]11. **WATER**

[**INSTREAM FLOW RESERVATION:** THE LITTLE SUSITNA HAS THE HIGHEST PRIORITY FOR INSTREAM FLOW RESERVATION DUE TO ANADROMOUS FISHERIES AND EXPECTED COMMERCIAL AND RECREATIONAL DEMANDS.]

a. **Public Water Supply.** The following measures should be evaluated and utilized in resort planning and development to offset possible negative impacts to water:

(1) On- or off-site public water storage for use during abnormally low flows at times of high demand.

(2) Water conservation programs.

(3) Ground-water wells.

(4) Bring in water from off-site sources such as public wells, public water utilities, etc.

b. **Water Supply for Snowmaking.** Snowmaking water withdrawals may have adverse impacts on the Little Susitna River and the Fishhook Creek streamflow during the winter low flow months. Alternate means of providing water for snowmaking during low-flow periods should be explored:

(1) Use Government Creek, Fishhook Creek, or the Government Creek bowl (unnamed creek) for snowmaking in addition to the Little Susitna River.

(2) Install storage ponds at strategic locations that can be accessed by the snowmaking system. These ponds would contain water diverted to them during periods of pre season high flows. The developer should evaluate the potential of using a natural pond and depression in Section 15 for snowmaking to reduce or eliminate the need to pump water up the mountain for snowmaking.

(3) Use ground water to augment snowmaking.

(4) Use water from off site public water sources.

c. **Hydrogeologically Sensitive Areas.** Resort development should avoid hydrogeologically sensitive areas, i.e. those which, due to high water tables and/or near-surface bedrock, are especially susceptible to ground water contamination. (Potential sources of contamination are summarized in Table 15 in the **Hatcher Pass Alpine Ski Area and Four-Season Resort Project Evaluation**, p. 104.)